

WHAT IS CLAIMED IS:

1. An impeller for hurling aggregate material toward anvils said impeller comprising:  
a table; and  
5 a central feed body,  
wherein said center feed body is formed by steps and has a plurality of hard material insert rods.
2. The impeller according to claim 1  
10 further comprising:  
a shoe connected by a support bracket to said table; and  
a liner connected to said shoe and said table.
3. The impeller according to claim 1  
15 wherein said center feed body has a generally overall conical shape.
4. The impeller according to claim 1  
wherein said plurality of insert rods are positioned in  
20 a plurality of bores formed in a top landing surface of each said step, said bores each have a bottom,  
a top surface of each said insert rod is positioned significantly above an adjacent one of said bottoms up on the next said step whereby said insert  
25 rod top surface protects insert rods up on the next step from being washed out.
5. The impeller according to claim 2  
wherein a bottom row of said insert rods are fixed to said shoe and a row of insert rods are fixed on said  
30 liner adjacent to said shoe, said rows are stitched to protect a corner interface between said shoe and said liner.

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6. The impeller according to claim 1 wherein said stepped central feed body includes an outer peripheral side surface which is adjacent to an inner peripheral side surface of said table, the outer peripheral side surface is elevated above said inner peripheral side surface of said table thereby forming a step.

7. The impeller according to claim 1  
wherein extended insert rods are fixed to an exposed  
10 peripheral side surface of at least one of said steps.

8. The impeller according to claim 1 wherein at least one of said steps has a top landing surface that is generally horizontal with bores formed therein, said bores each have a central axis that is generally perpendicular to at least one of said top landing surfaces.

9. A center feed body for an impeller assembly comprising:

a plurality of stepped sections wherein

20 each stepped section has a plurality of hard material insert rods fixed therein.

10. The center feed body according to claim 9 wherein said stepped sections comprise of a plurality of concentric circles forming an overall frustoconical shape.

11. The impeller according to claim 10  
wherein said plurality of insert rods are positioned in  
a plurality of bores formed in a top landing surface of  
each said step, said bores each have a bottom,  
30 a top surface of each said insert rod is  
positioned significantly above an adjacent one of said  
bottoms up on the next said step whereby said insert

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rod top surface protects insert rods up on the next step from being washed out.

12. The center feed body according to claim 11 wherein extended insert rods are fixed to an exposed peripheral side surface of at least one of said step sections.

13. The impeller according to claim 10 wherein said step sections each have a top landing surface that is generally horizontal with bores formed therein, said bores have a central axis that is generally perpendicular to each said horizontal surfaces.

14. The impeller according to claim 11 wherein at least one of said step sections has a top landing surface that is generally horizontal with bores formed therein, said bores have a central axis that is generally perpendicular to said at least one of said top landing surfaces.

15. An impeller for hurling aggregate material toward anvils said impeller comprising:  
a table;  
a center feed body;  
a shoe connected by a support bracket to said table; and  
a shoe liner connected to said shoe and said table,

wherein a bottom row of said insert rods are fixed to said shoe and a row of insert rods are fixed on said liner adjacent to said shoe, said rows are stitched to protect a corner crease between said shoe and said liner.

Sub A17 16. An impeller for hurling aggregate material toward anvils said impeller comprising:

a table;  
a center feed body; and  
a shoe connected by a support bracket to

said table,

FUNCTIONAL

wherein said shoe has a geometric shape that reduces excessive normal forces and accompanying high friction of the material against the shoe.

17. An impeller shoe comprising:

a body,

10  
FUNCTIONAL

wherein said body has a geometric shape that reduces excessive normal forces and accompanying high friction of the material against the shoe.

18. The impeller shoe according to claim 17 wherein said geometry shape is generally convex.

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